

WHAT IS CLAIMED IS:

1. A method for protecting data transfers between
a switch and a physical network, the method comprising:
providing data to a first network interface for
5 transfer between the switch and the physical network, the
first network interface having a first reference clock;
transferring the data from the first network
interface to a second network interface, the second
network interface operable to transfer data between the
10 switch and the physical network, the second network
interface having a second clock reference; and
synchronizing the transfer of data from the second
network interface with a first in first out circuit that
writes transfers of data from the first network interface
15 using the first reference clock and reads data using the
second clock reference.
2. The method of Claim 1 wherein the data is
provided to the first network interface from the switch
20 for transfer to the physical network.
3. The method of Claim 1 wherein the data is
provided to the first network interface from the physical
network for transfer to the switch.
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4. The method of Claim 1 further comprising:
detecting a failure of the first network interface;
and
using the second network interface to transfer the
30 data between the switch and the physical network.

5. The method of Claim 1 wherein the data comprises ATM cells.

6. The method of Claim 5 wherein the switch
5 comprises an ATM card for transferring data from a digital subscriber line access multiplexer to a trunk.

7. The method of Claim 5 wherein the switch
comprises an ATM card for transferring data from a
10 digital subscriber line access multiplexer to a subtend.

8. The method of Claim 1 wherein the physical network comprises an optical interface.

9. The method of Claim 8 wherein the optical
15 interface comprises an OC-3 interface.

10. The method of Claim 1 wherein the physical
network interface comprises a trunk interface and a
20 subtend interface.

11. The method of Claim 10 further comprising:
detecting a failure of data transfer between the
trunk and the switch; and
25 using the second network interface to transfer data
between the trunk and the switch.

12. The method of Claim 11 further comprising:
using the first network interface to transfer data
30 between the subtend and the switch.

13. The method of claim 1 further comprising:
detecting failure of the first network interface by
monitoring cell available signals.

13. The method of claim 1 further comprising:
detecting failure of the first network interface by
monitoring cell available signals.

14. A system for protecting data transfers between
a switch and a physical network, the system comprising:

a master network interface having a reference clock;

a slave network interface having a reference clock,

5 the slave network interface in communication with the
master network interface;

a timer to detect failure of the master network
interface for initiating protection with the slave
network interface; and

10 a protection first in first out circuit associated
with the slave network interface, the first in first out
circuit reading data transferred from the master network
interface synchronized to the master reference clock and
writing data synchronized to the slave reference clock.

15 15. The system of Claim 14 wherein the switch
comprises an ATM switch.

20 16. The system of Claim 15 wherein the timer
detects failure by timing cell available signals.

17. The system of Claim 14 wherein the physical
network comprises a trunk.

25 18. The system of Claim 14 wherein the physical
network comprises a subtend.

19. The system of Claim 14 wherein the physical network comprises at least one trunk and one subtend, the system further comprising:

plural protection first in first out circuits
5 associated with the slave network interface, each protection first in first out circuit associated with one of the trunk or subtend.

20. The system of Claim 19 wherein upon detection
10 of a failure of data transfer between the trunk and switch with the master network interface, the slave network interface maintains data transfers between the trunk and the switch and the master network interface maintains data transfers between the subtend and the
15 switch.

21. The system of Claim 19 wherein upon detection
of a failure of data transfer between the subtend and the switch with the master network interface, the slave
20 network interface maintains data transfers between the subtend and the switch and the master network interface maintains data transfers between the trunk and the switch.

22. The system of Claim 19 wherein the switch
25 comprises an ATM card installed in a digital subscriber line access multiplexer.

23. The system of Claim 14 wherein the physical
30 network comprises plural optical interfaces.

24. The system of Claim 14 wherein the master and slave network interfaces have substantially similar architectures so that either the slave or the master network interface may perform the function of the master network interface.

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25. A digital subscriber line access multiplexer comprising:

plural card slots;

an ATM switch card installed in one of the card
5 slots; and

first and second network interfaces in communication with each other, each network interface having a clock reference and operable to interface the ATM switch card with plural physical networks, wherein the first network
10 interface functions as a master and the second network interface functions as a slave to provide protection upon failure of the master, the second network interface having first in first out circuits that synchronize data transfers with the master network interface using the
15 master clock reference and the slave clock reference.

26. The digital subscriber line access multiplexer of Claim 25 wherein one of the plural physical networks comprises a trunk and another of the plural physical
20 networks comprises a subtend.

27. The digital subscriber line access multiplexer of Claim 25 wherein the physical networks comprise optical networks.

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28. The digital subscriber line access multiplexer of Claim 25 further comprising a cell available timer associated with each network interface, the cell available timer for detecting network interface failure.

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